An Assessment of Competition and Consumer Choice in Today’s U.S. Airline Industry

Daniel M. Kasper and Darin Lee, Ph.D.

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We have been asked by Airlines for America (“A4A”) to provide an independent economic assessment of the current state of airline industry competition and consumer choice for U.S. air travelers.

Our analysis relies on a variety of publicly available data and information sources, including:

- Data from various U.S. Department of Transportation (“DOT”) databases, including the Origin & Destination Survey (“DB1B”), Form 41, On-Time Performance and T-100 databases.
- OAG schedule data.
- SEC filings, news releases and other publicly available airline industry information sources.
- Published academic research.
An analysis using established criteria for assessing airline industry competition demonstrates that there is robust competition in the U.S. airline industry. In particular:*

- U.S. consumers currently enjoy a wide array of choices among competing airlines and products.

- The “Southwest Effect” is alive and well and there are now several rapidly growing carriers that substantially lower fares in the markets in which they compete.

- Robust competition spurred by both the continued growth of lower cost carriers and the expansion by all carriers at competitors’ hubs has resulted in fare levels among the lowest in U.S. aviation history.

- Following external shocks that severely impeded the economics of serving small communities, service at small airports has been growing.

- Improved financial health has enabled U.S. carriers to invest heavily in their products and services, create thousands of well-paying airline jobs, and substantially increase compensation levels for airline employees.

- The U.S. airline industry’s operational performance and customer satisfaction levels are at all-time highs.

*The opinions expressed in this presentation reflect the views of the authors and do not necessarily reflect the views of Compass Lexecon or its other experts. This study was commissioned by Airlines for America.
1. **U.S. Consumers Currently Enjoy an Abundance of Choices for Air Travel at Some of the Lowest Prices in History**
Overall, the Average Number of Competitive Choices for Air Travel Has Increased Over the Past Two Decades

- The average number of competitors per city-pair has *increased* consistently for almost two decades.
  - For example, between Dallas and New York, a market with close to 3,000 passengers per day each way ("ppdew"), the number of competitors increased from two to five including the addition of two low cost carriers.
  - Similarly, between Austin and Los Angeles (over 800 ppdew), the number of competitors increased from three to five (including two low cost carriers one of which is new).

- Simply put, the lack of entry barriers has made it easy for all carriers—including low cost and ultra low cost carriers—to continue entering and expanding into more city-pairs.

**Average Number of Competitors on U.S. Domestic City-Pairs**

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Number of Competitors</th>
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<tbody>
<tr>
<td>2000</td>
<td>3.3</td>
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<tr>
<td>2007</td>
<td>3.4</td>
</tr>
<tr>
<td>2016</td>
<td>3.5</td>
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Sources: U.S. DOT DB1B Database.
Notes: A carrier is defined as a competitor on a city-pair if it has at least 5% of O&D passengers. Average number of competitors is weighted across city-pairs by passengers. Airports in the following metropolitan areas are grouped: Chicago (ORD, MDW), Cincinnati (CVG, DAY), Cleveland (CLE, CAK), Dallas (DFW, DAL), Houston (HOU, IAH), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco/Bay Area (SFO, OAK), Washington DC/Baltimore (DCA, IAD, BWI), and Tampa (TPA, PIE).
The Number of Competitive Choices per City-Pair Remains Robust Across Cities of All Sizes

- Overall and at large cities, there has been an increase in the average number of competitors per city-pair since 2007.

- There was a slight decrease in the number of competitors per city-pair from medium and small cities, but the average city-pair to/from small cities still has close to two competitors while medium cities average over three competitors.

- The worsening economics of 50-seat (and smaller) regional jets and sharp declines in short-haul travel due to the post-9/11 “hassle factor” have been the primary causes of the decrease in service at smaller cities.

Sources: U.S. DOT DB1B Database; T100; FAA (https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/categories/).

Notes: Bars show average number of competitors per city-pair where one end of each city-pair includes cities in that size category (based on 2007 enplanements). A carrier is defined as a competitor on a city-pair if it has at least 5% of O&D passengers. Average number of competitors at each city is computed as the passenger-weighted average of competitors on all city-pairs from that city. Average number of competitors for each city is calculated as the simple average across cities in a size category. City categories are based on 2007 enplanements with: Large Cities greater than 1% of U.S. enplanements, Medium Cities greater 0.25% of U.S. enplanements, Small/Nonhub less than 0.25% of U.S. enplanements and more than 10,000 annual enplanements. Size cutoffs based on FAA airport size definitions. The following airports are grouped into cities: Chicago (ORD, MDW), Cincinnati (CVG, DAY), Cleveland (CLE, CAK), Dallas (DFW, DAL), Houston (HOU, IAH), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco/Bay Area (SFO, OAK), Washington DC/Baltimore (DCA, IAD, BWI), and Tampa (TPA, PIE). All other cities are individual airports.
Ticket Prices Are At or Near Their Historical Lows Notwithstanding the 110% Increase in Jet Fuel Prices Since 1998 and Several Mergers

Real (Inflation Adjusted) Domestic Prices Per Mile, 1990-2016

Real domestic price per mile has declined by 40% since 1990 (and by 36% including bag and change fees)

Sources: A4A; U.S. Department of Labor Bureau of Labor Statistics; U.S. EIA.
Notes: 2016 Dollars. Prices are net of taxes and passenger facility charges. Real domestic price per mile is stage-length adjusted to 1,000 miles. Bag and change fees are domestic unadjusted for distance.
DOT’s Most Recent Quarterly Fare Report Finds Fares Are at Historically Low Levels

Inflation-Adjusted Air Fares

Fourth-quarter fares were the lowest fourth-quarter fares since BTS began reporting fares in 1995, down 3.0 percent from the previous low of $357 in 2009 (Table 1). They were the lowest for any quarter since $344 in the third quarter of 2009.

Sources: U.S. DOT.
In an Increasing Number of City-Pairs, Consumers Can Choose from Full Service Options on Global Network Carriers, Low Cost Options on Carriers Such as JetBlue, and Even Lower Cost Options on ULCCs Such as Spirit

Source: U.S. DOT DB1B Database 2016.
In Response to Strong Demand for “Unbundled” Fares Offered by ULCCs, Global Network Carriers Have Introduced “Basic Economy” Fares

Source: United.com accessed on June 1, 2017 for outbound travel on June 8, returning on Tuesday June 12th. Lowest return fares priced at $166 (Basic Economy) on 5:34 PM, 7:35 PM and 9:20 PM departures.
2. Rapid Expansion by LCCs and Other Smaller Carriers Has Spurred Robust Competition Putting Substantial Downward Pressure on Airfares
Smaller Carriers Have Been Growing Far Faster Than the Four Largest Carriers

Growth in Systemwide ASMs Since 2010

Source: OAG.
Notes: ULCCs include Allegiant, Spirit and Frontier. Carriers include predecessor airlines.
The Geographic Penetration of LCCs/ULCCs/Smaller Carriers is Now Pervasive


1998

2016

Sources: U.S. DOT DB1B and DB1A.
Notes: Domestic Passengers with non-Global Network Carrier Options defined as passengers traveling in city-pairs where at least one non-Global Network Carrier has at least a 5% O&D share. New York and New Jersey are grouped. District of Columbia, Virginia, and Maryland are grouped.
Small Carriers with Low Cost Structures Have Captured Nearly All of the Growth in Domestic Demand Since 2007 (Approx. 100,000 Passenger/Day)


- **American**: 55,861 (4.3%)
- **Delta**: 245,149 (18.7%)
- **United**: 313,970 (23.9%)
- **LCCs and Low Fare Premium Carriers**: 413,005 (31.5%)
- **Other Carriers**: 28,060 (2.1%)
- **Total**: 1,312,290

**2007 Avg. Daily Passengers: 1,312,290**


- **American**: 200,561 (14.2%)
- **Delta**: 525,892 (37.3%)
- **United**: 296,101 (21.0%)
- **LCCs and Low Fare Premium Carriers**: 264,642 (18.8%)
- **Other Carriers**: 7,990 (0.6%)
- **Total**: 1,409,682

**2016 Avg. Daily Passengers: 1,409,682**

Source: U.S. DOT DB1B Database.
Notes: Numbers indicate average daily O&D passengers for each carrier and their share of total O&D passengers. United includes Continental, Delta includes Northwest, American includes US Airways. LCCs and Low Fare Premium Carriers include Southwest, JetBlue, Alaska, Hawaiian, Virgin America, Sun Country and AirTran. ULCCs include Spirit, Allegiant and Frontier.
Smaller Carriers (Alaska, Spirit, JetBlue, etc.) Have Been Growing Rapidly

Share of Domestic O&D Passengers

Sources: U.S. DOT DB1B.
Notes: American, Delta, United and Southwest reflect merged carriers in all years.
Consumers’ Options to Choose from Carriers Other Than the Global Network Carriers Have Increased Significantly Over the Past Two Decades

Sources: U.S. DOT DB1B.
Notes: Domestic passengers. Global Network Carriers includes American, Delta, United, and their predecessors. Passengers with non-Global Network Carrier options are passengers on city-pairs where at least one non-Global Network Carrier has at least a 5% O&D passenger share. Airports in the following metropolitan areas are grouped: Chicago (ORD, MDW), Cincinnati (CVG, DAY), Cleveland (CLE, CAK), Dallas (DFW, DAL), Houston (HOU, IAH), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco/Bay Area (SFO, OAK), Washington DC/Baltimore (DCA, IAD, BWI), and Tampa (TPA, PIE).
The Assertion That “The ‘Southwest Effect’ is Long Gone” Has Been Proven to Be Untrue

- Some industry observers have asserted that since its merger with AirTran “The ‘Southwest Effect’ is Long Gone.”

- Such statements are unfounded and have been directly refuted by published research.

- A recent update of a frequently cited study by Prof. Jan Brueckner, Dr. Darin Lee and Dr. Ethan Singer (known as the “BLS study”**) demonstrates that the Southwest Effect on fares is alive and well.

Rigorous Econometric Analysis Demonstrates That a Number of Carriers—Including Southwest—Put Substantial Downward Pressure on Fares

An update of the BLS model demonstrates that, in 2016, Southwest’s presence on a route lowered fares by more than 21%.

The decline in the Southwest Effect in recent years is primarily attributable to:†

- Rapid growth of other LCCs and ULCCs which has lowered overall market fares nationally.
- Southwest’s strategy of selling “bundled” fares while other carriers adopt varying degrees of the “unbundled” strategy (i.e., charging separately for ancillary services such as checked bags, pre-selected seats, overhead space, etc.).
- Southwest’s success in capturing a larger share of higher yielding business passengers.

The results shows that a wide range of smaller (but rapidly expanding) carriers also put substantial downward pressure on global network carrier fares, e.g.:

- Alaska 24.0%
- JetBlue 25.4%
- Spirit 18.5%

†The original BLS report using data from YE-2008-Q2 had a Southwest effect of 26.8% for All Fares.

Intense Competition from Low Cost and Smaller Carriers Has Kept Airline Prices At or Near Their Historical Low Point

Real (Inflations Adjusted) Domestic Prices Per Mile vs. Smaller Carriers’ O&D Share, 1990-2016

Real domestic price per mile has declined by 40% since 1990 (and by 36% including bag and change fees)

Sources: A4A; U.S. Department of Labor Bureau of Labor Statistics; U.S. DOT DB1B; U.S. EIA.
Notes: 2016 Dollars. Prices are net of taxes and passenger facility charges. Smaller carriers are all U.S. carriers except Global Network Carriers (American, Delta, United, and their predecessors). Real domestic price per mile is stage-length adjusted to 1,000 miles. Bag and change fees are unadjusted for distance.
Smaller U.S. Carriers Are Also Growing Faster Than the U.S. Global Network Carriers on International Routes

Source: OAG.
Notes: U.S. carriers only. Transatlantic defined as Europe, Middle East, Indian Subcontinent and Africa; transpacific is defined as Asia and Australia; Latin America defined as Mexico, Central America, South America, and Caribbean countries. Total international capacity excludes Canada. Global Network Carriers include American, Delta, and United. Southwest includes AirTran.
International Carriers Have Been Expanding Into the United States As Well

Source: OAG.
Notes: Excludes U.S. carriers. Transatlantic defined as Europe, Middle East, Indian Subcontinent and Africa; transpacific is defined as Asia and Australia; Latin America defined as Mexico, Central America, South America, and Caribbean countries. Total international capacity excludes Canada.
3. Carriers Have Been Relentlessly Expanding into Each Others’ Hubs
The Four Largest U.S. Carriers Aggressively Compete Against One Another-Including at Each Others’ Hubs

% Capacity Growth By the Four Largest U.S. Carriers at Other Carriers’ Hubs/Focus Cities, 2010 to 2017*

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<th>Competitors’ Hub Cities</th>
<th>U.S. GDP Growth</th>
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Source: OAG, World Bank.
Notes: *Capacity measured by ASMs. Airports in the following metropolitan areas are grouped: Chicago (ORD, MDW), Dallas (DFW, DAL), Houston (HOU, IAH, EFD), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco Bay Area (SFO, OAK), and Washington DC (DCA, IAD, BWI). Growth in real U.S. GDP from 2010 to 2017 using World Bank forecasts.
Smaller Carriers Have Been Rapidly Expanding Into Large Carrier Hubs

Increase in Daily Seats By Smaller Carriers at Large Carrier Hubs/Focus Cities, 2010 to 2017

Source: OAG.
Notes: Airports in the following metropolitan areas are grouped: Chicago (ORD, MDW), Dallas (DFW, DAL), Houston (HOU, IAH, EFD), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco Bay Area (SFO, OAK), and Washington DC (DCA, IAD, BWI).
LCCs and Other Smaller Carriers Have Grown Rapidly at U.S. Global Network Carriers’ Hub Cities and Now Carry a Significant Share of Passengers at Those Cities

Source: U.S. DOT DB1B.

Notes: Share of domestic O&D passengers on U.S. carriers other than American, Delta, United, and predecessor carriers. Airports in the following metropolitan areas are grouped: Chicago (ORD, MDW), Dallas (DFW, DAL), Houston (HOU, IAH, EFD), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco Bay Area (SFO, OAK), and Washington DC (DCA, IAD, BWI).
## Itinerary Options Between St. Louis and San Francisco

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**Source:** OAG for June 22, 2017.

**Notes:** One-stop and nonstop options based on scheduled flights. Includes connections with a minimum and maximum connection time of 45 minutes and four hours, respectively, and a maximum circularity (relative to great circle distance) of 1.5. San Francisco Bay Area includes SFO and OAK.
Because of Hub-and-Spoke Networks, Even “De-Hubbed” Airports Remain Well Connected

Number of Itinerary Options from De-Hubbed Cities to Other Cities

Options from De-Hubbed City
- St. Louis
- Memphis
- Cleveland
- Cincinnati
- Pittsburgh

Number of Itinerary Options to Large Cities
- San Francisco/Bay Area
- LA Basin
- New York
- Boston
- Miami/Ft. Lauderdale

Number of Itinerary Options to Small Cities
- Sacramento
- Albany, NY
- Raleigh/Durham
- Charleston
- Norfolk/Va. Beach/Wmbg


Notes: One-stop and nonstop options based on scheduled flights. Includes connections with a minimum and maximum connection time of 45 minutes and four hours, respectively, and a maximum circuitry (relative to great circle distance) of 1.5. Airports in the following metropolitan areas are grouped: Chicago (ORD, MDW), Dallas (DFW, DAL), Houston (HOU, IAH, EFD), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco Bay Area (SFO, OAK), Washington DC (DCA, IAD, BWI), and Tampa (TPA, PIE).
Competitiveness at the Hub Airports Has Kept Fares Low

- On average, fares at hub airports are no higher than at other airports.*
- To the extent that some hub airports have higher fares than the national average, this reflects service quality factors at hubs, including:
  - Non-stop service to a broader range of destinations, including many smaller communities that are more costly to serve due to lower passenger density.
  - Higher flight frequency.
  - Greater mix of premium fare travelers (i.e., passenger mix).

<table>
<thead>
<tr>
<th></th>
<th>Hubs</th>
<th>Non-Hubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Distance Adjusted Fare vs. National Average</td>
<td><img src="image" alt="Graph" /></td>
<td><img src="image" alt="Graph" /></td>
</tr>
<tr>
<td>1.3%</td>
<td>1.3%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>5.0%</td>
<td>5.0%</td>
<td></td>
</tr>
<tr>
<td>10.0%</td>
<td>10.0%</td>
<td></td>
</tr>
<tr>
<td>15.0%</td>
<td>15.0%</td>
<td></td>
</tr>
<tr>
<td>20.0%</td>
<td>20.0%</td>
<td></td>
</tr>
</tbody>
</table>

Sources: U.S. DOT DB1B.

Notes: *Fare differences are measured against a distance adjusted national average fare, as described in Borenstein, Severin, “U.S. Domestic airline Pricing, 1995-2004,” University of California, Berkeley, Jan. 2005. Top 50 U.S. cities by 2016 passengers. Hubs are for American (DFW, ORD, CLT, DCA, PHX, MIA, PHL), Delta (ATL, MSP, DTW, SLC, LGA, JFK, SEA), United (IAH, EWR, SFO, DEN, LAX, IAD). Non-hubs include CMH, PIT, IND, SAT, STL, BNA, AUS, MSY, RDU, MCI, HOU, SNA, SMF, MKE, BOS, HNL, RSW, MDW, SAN, DAL, TPA, SJC, BWI, PDX, MCO, LAS, SJU, FLL, OAK, CLE.
4. *Service at Small Airports Has Been Rebounding in Recent Years*
After Several Years of Decline Due to External Shocks That Severely Impeded the Economics of Serving Small Communities, Capacity at Small Cities Has Been Growing

**Daily Seats from U.S. Airports Excluding Large and Medium Hub Cities**

Source: U.S. DOT T100, OAG.
Notes: Scheduled seats. All U.S. carriers. Excludes all cities with more than 0.25% of annual enplaned passengers in 2007. The following airports are grouped into cities: Chicago (ORD, MDW), Cincinnati (CVG, DAY), Cleveland (CLE, CAK), Dallas (DFW, DAL), Houston (HOU, IAH), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco/Bay Area (SFO, OAK), Washington DC/Baltimore (DCA, IAD, BWI), and Tampa (TPA, PIE). All other cities are individual airports.
9/11 Resulted in a Permanent Drop in Demand for Short-Haul Travel by Air, Impacting Smaller Airports

- Air service to/from communities tends to be short-haul routes to hub airports and are therefore disproportionally impacted by external shocks that undermine the economics of short-haul routes.

- Following 9/11 the security related “hassle factor” made traveling by air less convenient and more time consuming, thereby permanently reducing demand for air service on short-haul routes.

- As more consumers opted to use ground transportation rather than flying for short-haul travel, service on many routes involving small communities within driving distance to larger airports became uneconomic.
  - In addition to rail and private automobiles, the reduction in short-haul traffic by air coincides with a dramatic increase in inter-city express bus services, which grew from only 2.3 million passenger trips in 2008 to 11.6 million 2015.

Rising Fuel Prices after 9/11 Rendered 50-Seat Regional Jet Services Uneconomic on Many Routes, Making It Even More Difficult to Sustain Service to Some Small Communities

Daily Departures on Regional Jets with 50 or Fewer Seats on A4A Members and Delta

The bulk of RJs with 50 (and fewer) seats were ordered by U.S. carriers when jet fuel prices were below $1/gallon.

Source: OAG; EIA. Includes merged carriers in all years. Jet fuel per gallon cost in 2016 dollars. Carriers include Alaska, American, Delta, Hawaiian and United (including their predecessor carriers).
As Smaller, Less Fuel-Efficient, 50-Seat RJs Are Retired from U.S. Carriers’ Fleets, Passengers Benefit from More Comfortable 76-Seat RJs and More Mainline Flights

Percent of Domestic Departures by Aircraft Size on A4A Members and Delta

Source: OAG.

Notes: Shows percentage of domestic departures by aircraft gauge for A4A members and Delta. Includes merged carriers in all years. A4A passenger carriers are Alaska, American, Hawaiian, JetBlue, Southwest, and United.
The number of carriers serving an airport is directly related to the level of traffic at the airport.

Smaller airports tend to have fewer carriers due to the lack of demand.

For example, airports served by only one carrier average only 78 passengers per day, while airports with two carriers serve an average of 137 passengers per day.

Source: OAG; U.S. DOT DB1B, 2016.
Notes: Domestic passengers and carriers only. A carrier serves an airport if it has at least 10 annual departures in 2016. Excludes airports with less than one ppdew.
Consumers in Small- and Medium-Sized Communities Continue to Have Competitive Choices, Notwithstanding the Reductions in Service At Some Cities

- Although the challenges of providing service to small communities resulted in some airports experiencing a reduction in service over the past decade, passengers in all but the smallest communities (i.e., those with insufficient demand to support multiple carriers) still benefit from competitive choice.

- For example, the average city-pair to/from small cities still has close to two competitors and passengers using small cities are increasingly benefitting from service on larger 76-seat regional jets with Wi-Fi, First Class, Premium Economy, etc.

Sources: U.S. DOT DB1B Database; T100; FAA (https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/categories/).
Notes: Bars show average number of competitors per city-pair where one end of each city-pair includes cities in that size category (based on 2007 enplanements). A carrier is defined as a competitor on a city-pair if it has at least 5% of O&D passengers. Average number of competitors at each city is computed as the passenger-weighted average of competitors on all city-pairs from that city. Average number of competitors for each city size is calculated as the simple average across cities in a size category. City categories are based on 2007 enplanements with: Large Cities greater than 1% of U.S. enplanements, Medium Cities greater 0.25% of U.S. enplanements, Small/Nonhub less than 0.25% of U.S. enplanements and more than 10,000 annual enplanements. Size cutoffs based on FAA airport size definitions. The following airports are grouped into cities: Chicago (ORD, MDW), Cincinnati (CVG, DAY), Cleveland (CLE, CAK), Dallas (DFW, DAL), Houston (HOU, IAH), Los Angeles Basin (LAX, BUR, LGB), Miami (MIA, FLL), New York (LGA, JFK, EWR), San Francisco/Bay Area (SFO, OAK), Washington DC/Baltimore (DCA, IAD, BWI), and Tampa (TPA, PIE). All other cities are individual airports.
5. Profitability Has Enabled U.S. Airlines to Increase Investment, Hire More Employees and Raise Compensation While Simultaneously Delivering Low Fares
Since Its Deregulation, Profitability in the U.S. Airline Industry Has Been Highly Volatile and Unpredictable
After Shedding Over 120,000 Mainline Jobs Between 2000 and 2009, a More Profitable U.S. Airline Industry Has Restored Employment and Compensation Growth for U.S. Airline Workers

Source: U.S. DOT Form 41.
Notes: Mainline service. Average salaries and benefits in 2016 dollars. Merged carriers included for all years. A4A passenger carriers are Alaska, American, Hawaiian, JetBlue, Southwest, and United.
Profitability Has Also Allowed U.S. Carriers to Triple Capital Expenditures Over the Past Six Years

A4A Carrier and Delta Capital Expenditures

- May 2015 - United announces $781 million in airport improvements at LAX and IAH
- Dec. 2014 - American Airlines announces more than $2 Billion in planned customer improvements
- Apr. 2013 - Southwest opens new terminals at Love Field
- Oct. 2012 - Alaska places $5 billion Boeing order
- Jun. 2011 - American places order for 460 new narrowbodies
- Jun. 2014 - JetBlue debuts “Mint” Premium cabin
- Jul. 2015 - Delta announces LGA redevelopment project
- Dec. 2016 - United unveils Polaris front-cabin service


Notes: Includes merged carriers in all years.
Operational Reliability Since the Most Recent Set of Mergers Has Increased to Its Highest Level in Years

On-Time Arrival Rate (A:14)

Flight Cancellation Rate (For Any Reason, Including Weather)

Notes: Domestic A4A and Delta rates, including regional carriers (Mesa, Express Jet, Endeavor) with 1% of annual revenue passengers. Includes merged carriers in all years. A:14 rate is percentage of completed flights arriving within 14 minutes of scheduled arrival time. Cancellation rate is percent of cancelled scheduled operations. A4A passenger carriers are Alaska, American, Hawaiian, JetBlue, Southwest, and United.
Mishandled Bags and Denied Boarding Rates Are at Their Lowest Rates in the Last Decade

Source: U.S. DOT Air Travel Consumer Reports.
Notes: A4A carriers and Delta, including reporting regional carriers. Passengers are denied boarding if they are involuntarily bumped from their reserved seat due to oversale. A4A passenger carriers are Alaska, American, Hawaiian, JetBlue, Southwest, and United, including predecessor carriers.
JD Power’s Latest Study Shows that Customer Satisfaction Has Increased to the Highest Level in a Decade

### JD Power North America Airline Satisfaction Study, 2007 v. 2017

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>668</td>
<td>765</td>
</tr>
<tr>
<td>Delta</td>
<td>663</td>
<td>758</td>
</tr>
<tr>
<td>American</td>
<td>663</td>
<td>736</td>
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<tr>
<td>United</td>
<td>682</td>
<td>716</td>
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<tr>
<td>Southwest</td>
<td>733</td>
<td>807</td>
</tr>
<tr>
<td>JetBlue</td>
<td>733</td>
<td>810</td>
</tr>
<tr>
<td>Total</td>
<td>710</td>
<td>750</td>
</tr>
</tbody>
</table>

Notes: Based on 1,000 point scale. Ratings are “based on performance in seven factors (in order of importance): cost & fees; in-flight services; aircraft; boarding/deplaning/baggage; flight crew; check-in; and reservation.” 2007 carrier ratings are based on the simple average of merged carriers (e.g., United’s plus Continental’s score in 2007 divided by two).
Embry-Riddle’s 27th Annual Airline Quality Rating Indicated that Overall Airline Quality Reached Its Highest Level Ever in 2016

According to the recent Airline Quality Rating 2017 study:

- “The 2016 score is the best AQR score in the 26 year history of the rating.”
- “Improved performance was seen in all four of the areas tracked.”
- “Improvement in industry performance in all of areas in the ratings is a positive sign for consumers and airlines alike.”

Source: Airline Quality Rating 2017, Brent D. Bowen and Dean E. Headley, Embry-Riddle Aeronautical University, April 2017.
The American Customer Satisfaction Index Demonstrates that Passengers Are More Satisfied With U.S. Airline Services than They Have Ever Been

ACSÍ Passenger Satisfaction

![Graph showing passenger satisfaction from 2000 to 2018 with a significant increase from 2016 to 2017. The satisfaction score increased from 63 in 2000 to 75 in 2018.]

<table>
<thead>
<tr>
<th>Improvement in Passenger Satisfaction Metrics, 2016 v. 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of check-in process</td>
</tr>
<tr>
<td>Ease of making a reservation</td>
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<tr>
<td>Courtesy of flight crew</td>
</tr>
<tr>
<td>Timeliness of arrival</td>
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<tr>
<td>Website satisfaction</td>
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<tr>
<td>Baggage handling</td>
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<tr>
<td>Boarding experience</td>
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<tr>
<td>Call center satisfaction</td>
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<tr>
<td>Range of flight schedules</td>
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<tr>
<td>Loyalty program</td>
</tr>
<tr>
<td>Quality of inflight services</td>
</tr>
<tr>
<td>Seat comfort</td>
</tr>
</tbody>
</table>

Source: American Customer Satisfaction Index.
Notes: U.S. airlines. Based on a 100 point scale. All satisfaction metrics shown.
6. Conclusions
The U.S. Airline Industry’s Renaissance Has Resulted in Robust Competition Benefitting Consumers, Airline Employees and Communities Across the Country

Flourishing Consumer Choices
- No reduction in the average number of competitors per city-pair since mergers.
- Rapid expansion by “premium-value” carriers such as Alaska and JetBlue, as well as ULCCs.
- Multitude of fare and service options (i.e., Basic Economy, Economy, Premium Economy, Business/First) on Global Network Carriers.

Highly Competitive Fares
- The “Southwest Effect” is alive and well.
- Rapid expansion by ULCCs charging fares well-below even those of Southwest and the other LCCs, and competitive responses by global network carriers hold fares down.
- Average domestic fares at or near their lowest level in history (with or without bag fees).

Higher Quality Service
- On-time rate and completion factors at highest levels in a decade.
- Mishandled bag and denied boarding rates at their lowest levels in a decade.
- Customer satisfaction rates at well above pre-merger levels.

Profitability Benefits Stakeholders
- Capital spending has tripled since 2007 as airlines renew fleets and upgrade airports.
- Resumption of job increases and wage growth for airline employees following more than a decade of furloughs and restructuring in bankruptcy.
Author Bios

Daniel M. Kasper
- J.D. and MBA, University of Chicago
- Senior Consultant, Compass Lexecon
- Former Director of International Aviation at the U.S. Civil Aeronautics Board
- Formerly on the faculties of the Harvard Business School and University of Southern California School of Business Administration

Dr. Darin Lee
- Ph.D. in Economics, Brown University
- Executive Vice-President, Compass Lexecon
- Author of nearly 20 published articles on the airline industry in leading economic journals such as the Journal of Law & Economics, Journal of Labor Economics, Economics of Transportation and Journal of Economic Strategy & Management.
- Editor of volumes 1 and 2 of Advances in Airline Economics.